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HD **In search of higher ground**

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>A Saturday Opinion article incorrectly attributed this quote to Sidewalk Labs chief executive officer Dan Doctoroff, when in fact it was said by the then-executive chairman of Alphabet Inc., Eric Schmidt, of the company’s project in a Toronto neighbourhood: “We started talking about all of these things that we could do if someone would just give us a city and put us in charge.”

Jakarta is sinking, and Indonesia is building a new capital. It's a vision of a future where climate change will force our hand – something all cities must reckon with, at the risk of leaving people behind International climate-change specialist and the former chief resilience officer for the City of Toronto

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There's something about water that draws people together. For reasons both romantic and practical, humans tend to congregate by oceans, lakes and streams. Almost every major city in the world – from New York and Toronto to London and Mombasa – sits beside a body of water, on a site chosen by founders who sought trade routes, economic hubs, marine resources such as fish and even places for rituals from birth to burial.

But there's something else that unites many major cities: They're sinking.

Climate change and urbanization have combined forces to cause this effect in cities worldwide. As global temperatures rise, glaciers melt and seas get warmer. Simultaneously, our cities face challenges from erosion, subsidence and permafrost melt. In short, sea levels are rising, and the ground beneath many cities is lowering. Taken together, homes flood, the foundations of buildings and other infrastructure crack and cities become inundated by storms. In some cases, entire neighbourhoods can sink to a point where they are assailed by water.

Jakarta – Indonesia's tropical, crowded capital, which sits near an inlet of the Java Sea – represents one of the most extreme examples of this existential threat. There, water for drinking or washing is drawn en masse from underground aquifers – meaning the city is literally draining the swamp on which it was built. Combined with sea-level rise, Jakarta has sunk more than 2.5 metres in the past 10 years alone.

At this rate, 95 per cent of northern Jakarta will be completely under water by 2050. This affects an astonishing number of people: Jakarta is on pace to be home to more than 36 million people by 2030, when it is forecast to become the most populous city region in the world.

Such an enormous challenge calls for a bold response, and the Indonesian government has delivered on that front.

Two weeks ago, President Joko Widodo announced a plan to build a new city in the East Kalimantan province on the island of Borneo – which has less exposure to climate-change hazards such as sea-level rise or natural disasters such as earthquakes – and relocate the capital from Jakarta to this from-scratch hub by around 2024.

At a cost of about US$33-billion, the planned-capital project is easily the world's most significant case of “managed retreat," where instead of fighting a climate hazard, a decision has been made to pull back to safe ground.

As Indonesia's commercial, cultural and political centre, Jakarta is also home to what is arguably some of the worst traffic congestion and urban air pollution in the world. Moving the administrative population might relieve some of Jakarta's urban and social stresses while decentralizing political life to a more central, politically neutral geographical location. Both the President and Prime Minister have promised to protect Borneo's ecologically important forests in constructing the new capital.

It is a big, bold, ambitious plan.

As a professional whose work relies on governments and businesses taking climate action, I should be excited about it. Done well, this could be a world-changing project.

And yet, I am filled with dread.

This is a fundamentally flawed idea – one that points to a dystopian future in which the world's poor drown under a rising sea and the rich, powerful or connected jump from the sinking ship.

Simply put, there are too many cities and too many people to all be moved to higher ground.

About 800 million people live in 570 coastal cities threatened by sea-level rise, according to C40, an international network of cities. Moving that many residents, homes and infrastructure is simply impractical. In fact, the plan to move Jakarta doesn't even propose to do that; rather, the idea is to move just the bureaucrats and politicians. This means the state will be sponsoring those with political power and their families to escape to safer ground, while the commercial capital will continue to face the storm surges and flooding of a sinking city. The poorest residents, those with the fewest means to relocate, risk being left behind.

There is a second issue: Capital cities planned from scratch generally do not change how the vast majority of people live. Some urbanists salivate at the idea of being freed from the shackles of how cities are already built. As Sidewalk Labs chief executive officer Dan Doctoroff said of the company's project in a Toronto neighbourhood: “We started talking about all of these things that we could do if someone would just give us a city and put us in charge." Unfortunately, the world doesn't work like that. It has been tried in dozens of countries, including Brazil, Nigeria, Tanzania and Australia. But compare Brasilia with Rio de Janeiro, Abuja with Lagos, Dodoma with Dar es Salaam and Canberra with Sydney; in each case, a country built a planned capital city, and in each case the pre-existing coastal urban centre remains the de facto heart of the country. The politicians, bureaucrats and associated hangers-on might be high and dry, but everyday Indonesians do not have the means to pull up stakes or access to political jobs, so Jakartans will remain by the water (or under it).

Cities are, in a way, a natural habitat for humans. The idea that we can just up and move the history and social fabric of a city, its relationships and people or its homes and infrastructure to a safer place is egotistical and, in a way, unnatural.

Indonesia's plan to move the capital to Borneo may provide temporary relief to some of that city's stresses, but from what we know today, the plan will do little to help Jakarta adapt. The effort and money spent building a new capital city might well distract from the sinking and flooding that still imperils tens of millions of Jakartans, especially with the political class physically removed from those dangers.

There is still hope, though. After concerns over what would be left in Jakarta, the government announced that US$40-billion over the next 10 years will be invested in the city to “modernize" it – even though that number is a relative pittance for a city this size, and appears to be devoted mostly to transport infrastructure. Final plans and timelines for both the new capital and the old one have not been set in stone.

And a project of this size would draw the best expertise from across the region, if not the world.

But this isn't just a localized crisis in Indonesia. Here in Canada, 70 per cent of Nova Scotians lives within 20 kilometres of the coast, where the sea level is rising faster than the global average as the ground subsides. Northern cities such as Iqaluit are contending with melting permafrost owing to climate change, causing the ground on which the city sits to crack or sink. From New Brunswick through Quebec and Ontario, inland flooding from rivers has raised the idea of managed retreat from flood-prone areas.

Canada is warming at almost twice the rate of the rest of the world – and in the North, three times as fast. Climate change's effect on Canadian communities is really just emerging, in the sense that we are only starting to experience and understand what may be the “new normal" of flooding, wildfires or sinking – a mari usque ad mare.

The new normal brings potentially wide-ranging economic and social changes, especially for the more than 80 per cent of Canadians who live in cities. There are houses that may be uninsurable due to climate risk. Older and taller apartments, which make up as much as 45 per cent of the rental housing in Toronto, may be too hot to live in for weeks of the summer. Outdoor workers will need to contend with hotter summers, as well as more extreme wind and rain. Bay Street firms will need to understand and disclose climate risks in their global portfolios. Relatives from overseas will need more financial support, more often, to deal with extreme weather and disasters.

Thankfully, Canada is home to some of the best expertise in infrastructure, city building and environment in the world. We are lucky, in the global scheme of climate change, to have the wherewithal to make our communities more resilient.

But there are lots of opportunities to level up our ambition. The Jakarta plan, if flawed, is at least a bold way to approach a problem that has been well studied for years. In Canada, we do not have even a national climate-change adaptation or resilience plan, let alone an ambitious one. The federal election has become obsessed with a carbon tax, which would reduce our effect on the climate; none of the parties has proposed a proper plan to help Canadians adapt to the climate's effect on us.

The first step in developing such a strategy is to significantly improve our understanding of climate risks. When we have a good understanding of them, Canadian governments and the private sector have typically responded with strong ideas. For example, the $1-billion Don River naturalization project in Toronto – a suitably daring response to flood risk – came about after years of study to understand the flood risk to Canada's commercial capital. We could invest more to understand climate risks in other areas, such as Northern and coastal communities.

The federal government deserves praise for its world-class efforts to advance our national understanding of climate change through reports such as Canada's Changing Climate and Canada's Top Climate Risks, both published this year. But while Britain made it mandatory in 2008 for the government to complete a national climate-risk assessment every five years, Canada is just starting out.

Provincial and local efforts are also pushing ahead. British Columbia recently completed the first provincial climate-risk assessment, and the Ontario government – yes, Doug Ford's Ontario government – has promised to do the same. Myriad communities, businesses, municipalities and academics are bursting with enthusiasm in tackling climate change, as cities from Vancouver and Edmonton to Kingston and Halifax have declared climate crises. But these efforts need to be scaled up and supported with the expertise and money needed to take real action. In the United States, “resilient-by-design" competitions in California and in post-Superstorm Sandy New York captured that local energy, directed it to designing locally supported climate-resilience projects and earned funding from the federal government to the tune of more than US$1.3-billion. Canada's federal and provincial governments, or even philanthropists, could support communities in developing and implementing local climate-resilience plans.

Canada can also leverage one of our cities' greatest strengths: our incredible green infrastructure, such as urban forests, ravines and parks. While we still rely on grey infrastructure – roads, bridges, power lines – the way we have traditionally built cities can contribute to problems such as sinking. Concrete and asphalt do not absorb water well, and the runoff can cause more erosion and flooding. So cities around the world are increasingly turning to green infrastructure as a complement to the traditional grey. For instance, the biggest project from New York's rebuild-by-design competition, the “Big U," plans to surround Lower Manhattan with a naturalized wetland, which would serve as a park in dry times and a flood plain as required. And from Gibsons, B.C., to Gibraltar Point on the southern tip of the Toronto Islands, Canadian municipalities are already doing incredible things on their own with green infrastructure.

Adapting our cities to climate change should be a national priority, to ensure that cities can continue to provide jobs, homes and community to the many millions of Canadians who live in urban centres. Globally, hundreds of cities need resilient solutions, and if we applied Canadian skills and resources to the issue, there would be a global market for Canadian climate-adaptation expertise.

We may have more breathing room than Jakarta, but time is not our friend. There is a huge opportunity for Canada to get ahead of the issue, but it starts with having the ambition to tackle it and the data to understand it. At the same time, we can support our communities and businesses to make our cities resilient to a changing climate.

Let's not wait until we're in deep water to start taking action.

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